

The seal of the State of South Dakota is a circular emblem. It features a central landscape with a river, a windmill, and a lighthouse. Above the landscape is a banner that reads "UNDER GOD THE PEOPLE RULE". The outer ring of the seal contains the text "STATE OF SOUTH DAKOTA" at the top and "GREAT SEAL" at the bottom, separated by two stars. The year "1889" is inscribed at the bottom of the seal.

STATEMENT OF BASIS

Title V Air Quality Minor Permit Amendment

**NuStar Pipeline Operating Partnership, L.P.
Yankton, South Dakota**

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1.0 Operational Description

Kaneb Pipe Line Operating Partnership, L.P., a NuStar Energy L.P. company (Kaneb) operates a refined petroleum fuels distribution terminal in Yankton. The terminal receives and stores diesel fuels, gasoline, and fuel additives through a pipeline network, which is then loaded into tanker trucks for regional delivery to fuel stations and the like. The primary Standard Industrial Classification (SIC) Code is 4613.

In March 1998, Kaneb in Yankton was issued Title V air quality permit #28.9904-07. The permit number will be changed to #28.0701-07, to meet the DENR permit numbering system. A modification of the permit occurred in 2005 to change a tank from a fixed roof to an internal floating roof tank. A renewal of the permit occurred on April 30, 2007.

In December 2007, the permit was modified to permit Unit #6, as a vertical fixed roof storage tank that stored distillate oil with an internal floating roof equipped with a double-wiper seal system storing gasoline and to change the use of Unit #15 from storing diesel/gasoline mix to diesel storage. Kaneb also requested a reduction in the annual throughput to the facility.

On March 31, 2008, DENR was notified by Kaneb that the company would be changing its name to NuStar Energy L.P.

On July 24, 2009, NuStar applied for a modification to its permit to relocate the loading arms on the terminal from top loading to bottom loading to comply with 40 CFR 63 Subpart BBBB. The application was considered complete on February 12, 2010.

1.1 Existing Equipment

Table 1-1 provides a description of the permitted equipment at NuStar's facility in Yankton.

Table 1-1 – Equipment Information

Unit	Description	Maximum Capacity	Control Equipment
#1	Custom built, two-bay, top-fill, petroleum fuels and ethanol, transport truck, loading rack with 16 arms	Not applicable	Not applicable
#2	Tank 02-05 – 1959 GATX above ground, internal floating roof storage tank	76,188 gallon	Not applicable
#3	Tank 05-09 - 1959 GATX above ground, fixed roof storage tank	181,734 gallon	Not applicable
#4	Tank 05-10 -1959 GATX above ground, fixed roof storage tank	181,734 gallon	Not applicable
#5	Tank 05-11 - 1959 GATX above ground, internal floating roof storage tank	181,734 gallon	Not applicable
#6	Tank 05-12 - 1959 GATX above ground, internal floating roof storage tank	181,734 gallon	Not applicable
#7	Tank 10-09 - 1959 GATX above ground, fixed roof	389,844 gallon	Not applicable

Unit	Description	Maximum Capacity	Control Equipment
	storage tank		
#8	Tank 10-10 - 1959 GATX above ground, fixed roof storage tank	389,844 gallon	Not applicable
#9	Tank 10-11 - 1959 GATX above ground, fixed roof storage tank	389,844 gallon	Not applicable
#10	Tank 10-12 - 1959 GATX above ground, fixed roof storage tank	389,844 gallon	Not applicable
#11	Tank 10-17 - 1963 GATX above ground, fixed roof storage tank	389,180 gallon	Not applicable
#12	Tank 15-02 - 1959 GATX above ground, internal floating roof storage tank	614,082 gallon	Not applicable
#13	Tank 15-03 - 1959 GATX above ground, internal floating roof storage tank	614,082 gallon	Not applicable
#14	Tank 20-01 - 1959 GATX above ground, fixed roof storage tank	796,656 gallon	Not applicable
#15	Tank 20-02 - 1964 GATX above ground, fixed roof storage tank	797,790 gallon	Not applicable
#16	Tank 30-14 – 1964 above ground, internal floating roof storage tank	1,227,996 gallon	Not applicable
#17	Tank 50-01 – 1963 above ground, internal floating roof storage tank	2,048,592 gallon	Not applicable

1.2 Proposed Equipment Changes

The following are proposed changes to the units:

1. Modify the loading rack to relocate the top loading arms to bottom loading locations.

2.0 Potential Emissions

NuStar listed the following gasoline vapor phase HAP-VOC weight percentages in the renewal application. These are identical to the baseline values listed in Table 11.3-2 of the EPA's January 2001 document "*Gasoline Marketing (Stage I and Stage II)*" and may be viewed in Table 2-1.

Table 2-1 – Gasoline Vapor Phase HAP-VOC Weight Percentages

VOC Pollutant	Percentage
Benzene	0.9 %
Ethyl Benzene	0.1 %
Toluene	1.3 %
Xylene	0.5 %

2,2,4-Trimethylpentane	0.8 %
Hexane	1.6 %
Cumene	0.05 %
Total	5.25 %

Based on the HAP-VOC percentages above, hexane will be the single HAP emitted in the greatest amount.

2.1 Current Potential Uncontrolled Emissions

The April 2007 SOB calculated the potential loading loss emissions using a slightly higher throughput than the current throughput limit stated in the permit – this throughput was decreased in the December 2007 permit modification but loading loss emissions were not recalculated. The April 2007 SOB used a value for “S” of 0.6, which was applicable for a bottom loading, submerged fill operation. At that time, tank trucks were actually filled via a top loading, submerged fill. However, the “S” factor of 0.6 is the same for both loading configurations. The April 2007 SOB Potential Loading Rack Emissions are shown in Table 2-1.

Table 2-1 – 2007 Potential Loading Rack Emissions

Fuel Type	Modeled Throughput [gallons/yr]	Equation 2-2 Variables		Calculated Loading Loss [lbs VOCs / 1000 gallons]	Emissions [tons/yr]		
		P	M		VOCs	HAPs	Hexane
		[psia]	[lb/lb-mol]				
Gasoline	114,975,000	4.2	66	4.09	235.0	12.3	3.8
Diesel	114,975,000	0.005	130	0.01	0.6	0.0	0.0
Denatured Ethanol	12,775,000 ¹	0.523 ²	49.87 ²	0.38	2.5	0.1	0.0
LOADING RACK TOTAL					238	12	4

¹ – Denatured ethanol throughput based on gasoline throughput and 10% ETOH mix; and

² – Vapor pressure and molecular weight data taken from application.

Table 2.2 summarizes the facility’s uncontrolled emissions from the statement of basis prepared for the April, 2007 permit renewal.

Table 2.2 – 2007 Potential Uncontrolled Emissions (tons/year)

Source	VOCs & HAPs	Hexane
Loading Rack	250	4
Tanks	16	0
FACILITY TOTAL	266	4

2.2 Proposed Loading Rack Modification

Loading rack emissions occur primarily as a result of the loading of transport tanks with gasoline. The ‘empty’ tanks contain vapors from the previous load. As the tank is filled these vapors are displaced and vented to the ambient air. Potential VOC and HAP emissions from the loading rack are based on Equation 2-1 derived from AP-42 5.2, 1/95 and the HAP-VOC weight percentages listed above.

Equation 2-1 – Estimated Emissions from Loading Racks

$$L_L = \left(\frac{2.46 \times S \times P \times M}{T} \right)$$

Where:

- L_L = loading loss, pounds per 1000 gallons of liquid loaded
- S = saturation factor - 0.60 (Table 5.2-1 in EPA’s AP-42 for submerged loading of dedicated normal service cargo tanks);
- P = true vapor pressure of liquid loaded, in pounds per square inch absolute (psia) – 4.2 and 0.005 from Table 7.1-2 in EPA’s AP-42 at 50 degrees Fahrenheit for gasoline RVP 10 and No. 2 distillate, respectively;
- M = molecular weight of vapors, in pound per pound-mole – 66 and 130 from Table 7.1-2 in EPA’s AP-42 for gasoline RVP 10 and No. 2 distillate, respectively; and
- T = temperature of bulk liquid loaded, in °R (°R = °F + 460) = 507

The P and M values used in Equation 2-1 are shown in Table 2.3 for gasoline, ethanol, and diesel fuel along with the resulting annual potential emissions based on the facility’s requested gasoline throughput limit.

Table 2-3 – Potential Loading Rack Emissions

Fuel Type	Modeled Throughput [gallons/yr]	Equation 2-1 Variables		Calculated Loading Loss [lbs VOCs / 1000 gallons]	Emissions [tons/yr]		
		P	M		VOCs	HAPs	Hexane
		[psia]	[lb/lb-mol]				
Gasoline	102,699,450	4.2	66	4.09	210	11.3	3.4
Diesel	102,699,450	0.005	130	0.01	0.5	0.0	0.0
Denatured Ethanol	12,775,000 ¹	0.523 ²	47.25 ²	0.38	2.3	0.1	0.0
LOADING RACK TOTAL					213	11	3

¹ – Denatured ethanol throughput based on gasoline throughput and 10% ETOH mix; and

² – Vapor pressure and molecular weight data taken from application.

2.3 Fugitive Emissions

Fugitive VOC and HAP emissions occur at pump seals, flanges, and valves associated with the pipeline, loading rack, and gasoline storage tanks. NuStar is not proposing modifications in flows or other changes that would affect fugitive VOC and HAP emissions. Therefore, the 2007 SOB fugitive emissions will be used in this SOB.

2.4 Facility Potential Emission Summary

The facility's potential uncontrolled emissions are summarized in Table 2-4

Table 2.4 – Potential Uncontrolled Emissions (tons/year)

Source	2007 VOCs & HAPs	2007 Hexane	2010 VOCs & HAPs	Hexane
Loading Rack	250	4	209	4
Tanks	16	0	16	0
Fugitive Emissions	1	0.02	1	0.02
FACILITY TOTAL	266	4	226	4

The proposed changes to the loading rack do not cause a change in VOCs and HAPs emissions. There is a reduction in emissions when compared to the April 2007 SOB due to the decrease in the gasoline and diesel throughputs approved in the December 2007 modification.

3.0 New Source Review

ARSD 74:36:10:01 notes that new source review regulations apply to areas of the state which are designated as nonattainment pursuant to the Clean Air Act for any pollutant regulated under the Clean Air Act. This facility is located in Yankton which is in attainment for all the pollutants regulated under the Clean Air Act. Therefore, this facility is not subject to new source review.

4.0 Prevention of Significant Deterioration

A prevention of significant deterioration (PSD) review applies to new major stationary sources and major modifications to existing major stationary sources in areas designated as attainment under Section 107 of the Clean Air Act for any regulated pollutant. If the source is considered one of the 28 named PSD source categories listed in Section 169 of the federal Clean Air Act, the major source threshold is 100 tons per year of any regulated pollutant. The major source threshold for all other sources is 250 tons per year of any regulated pollutant. One of the 28 source categories listed is "petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels." Under the PSD program petroleum refers to unrefined crude oils.

The facility stores only refined petroleum fuels; therefore, the PSD threshold for this facility is 250 tons of VOCs per year.

Potential VOC emissions from the permitted sources are greater than 250 tons per year. Therefore, this facility is considered a major source under the PSD program. NuStar's Yankton facility was constructed prior to the promulgation of the PSD program, and was not required to obtain a PSD permit. However, any change that occurs at this facility must be reviewed to determine if it is considered a major modification under the PSD program. A major modification is defined as any increase of VOC emissions greater than or equal to 40 tons per year. The increase in VOC emissions from this change is negligible; therefore, a PSD review is not applicable.

5.0 New Source Performance Standards

DENR reviewed the following new source performance standards (NSPS) and determined that the following standards may be applicable.

5.1 40 CFR Part 60, Subpart XX

The standards of performance for bulk gasoline terminals are applicable to loading racks at bulk gasoline terminals that were constructed or modified after December 17, 1980. The existing facility was constructed prior to 1980. The changes to the existing loading rack do not increase emissions and do not constitute a modification. 40 CFR 60 Subpart XX defines "refurbishment as, with reference to a vapor processing system, replacement of components of, or addition of components to, the system within any 2-year period such that the fixed capital cost of the new components required for such component replacement or addition exceeds 50 percent of the cost of a comparable entirely new system.

NuStar submitted documentation comparing the costs to construct a new bottom loading rack versus converting the existing rack to a bottom loading unit. The cost to convert the unit was less than 50% of the cost to construct the new unit. Therefore, 40 CFR Part 60, Subpart XX is not applicable.

6.0 Maximum Achievable Control Technology Standards

The department reviewed the maximum achievable control technology standards and determined that the following standards may be applicable.

6.1 40 CFR Part 63, Subpart BBBBBB

DENR reviewed the maximum achievable control technology standards and determined that 40 CFR 63 Subpart BBBBBB may be applicable. This standard applies to each area source bulk gasoline terminal, pipeline breakout station, pipeline pumping station, and bulk gasoline plant.

The emission sources to which this subpart applies are gasoline storage tanks, gasoline loading racks, vapor collection-equipped gasoline cargo tanks, and equipment components in vapor or liquid gasoline service that meet the criteria specified in Tables 1 through 3 to this subpart. Existing affected sources must comply with the standards in this subpart no later than January 10, 2011. NuStar is considered an existing facility and is subject to this subpart.

6.2 ARSD 74:36:08:12 - 40 C.F.R. Part 63, Subpart R – National Emission Standards for Gasoline Distribution Facilities.

DENR reviewed the maximum achievable control technology (MACT) standards and determined that ARSD 74:36:08:12 - 40 CFR Part 63, Subpart R – National Emission Standards for Gasoline Distribution Facilities may be applicable. The proposed change to the loading rack will not change the federally enforceable gasoline throughput limit, or change any of the other factors in the screening equation. Therefore, as previously determined, NuStar is considered an area source and this MACT standard is not applicable. Any existing permit conditions remain in force.

7.0 Recommendation

The proposed changes described above do not change the permit status of the NuStar facility in Yankton. The department recommends approval of the minor permit amendments to the existing Title V air quality operating permit. Any questions on this review should be directed to Keith Gestring, Natural Resources Project Engineer, Department of Environment and Natural Resources.

APPENDIX A

MINOR PERMIT AMENDMENT

1.0 STANDARD CONDITIONS

1.1 Operation of source. In accordance with Administrative Rules of South Dakota (ARSD) 74:36:05:16.01(8), the owner or operator shall construct and operate the units, controls, and processes as described in Table 1-1 in accordance with the statements, representations, and supporting data contained in the complete permit application submitted and dated August 6, 2009 and October 19, 2009, unless modified by the conditions of this permit. The control equipment shall be operated in a manner that achieves compliance with the conditions of this permit at all times. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in an application, such information shall be promptly submitted.

9.0 40 CFR PART 63, SUBPART BBBBBB

9.1 Compliance deadline. In accordance with 40 CFR § 63.11083(b), the owner or operator must comply with the permit conditions in this Chapter as well as any other applicable requirements of Subpart BBBBBB no later than January 10, 2011.

9.2 Requirements for gasoline storage tanks. In accordance with 40 CFR § 63.11087(a), the owner or operator shall meet the emission limit and maintenance practice as outline below:

1. Each gasoline storage tank with a capacity of less than 75 cubic meters (19,813 gallons) shall be equipped with a fixed roof that is mounted to the storage tank in a stationary manner, and maintain all openings in a closed position at all times when not in use; and
2. Each gasoline storage tank with a capacity of greater than or equal to 75 cubic meters (19,813 gallons) shall be equipped with one of the following:
 - a. A closed vent system and control device as specified in 40 CFR § 60.112b(a)(3) that reduces emissions of total organic hazardous air pollutants or total organic compounds by 95 weight-percent;
 - b. An internal floating roof as specified in 40 CFR § 60.112b(a)(1), except for the secondary seal requirements under 40 CFR § 60.112b(a)(1)(ii)(B) and the requirements in 40 CFR § 60.112b(a)(1)(iv) through (ix);
 - c. An external floating roof as specified in 40 CFR § 60.112b(a)(2), except the requirements under 40 CFR § 60.112b(a)(2)(ii) apply only if the storage tank does not meet the requirements of 40 CFR § 60.112b(a)(2)(i);or
 - d. Equip and operate each internal and external floating roof gasoline storage tank as specified in 40 CFR § 63.1063(a)(1) and (b) and equip each external floating roof gasoline storage tank as specified in 40 CFR § 63.1063(a)(2) if the roof does not meet the requirements specified in 40 CFR § 63.1063(a)(1).

9.3 Testing requirements for gasoline storage tanks. In accordance with 40 CFR § 63.11087(c) and 40 CFR § 63.11092(e), the owner or operator shall conduct inspections on the

gasoline storage tanks as follows:

1. If a gasoline storage tank is equipped with an internal floating roof, the owner or operator shall conduct inspections of the floating roof system according to the requirements of 40 CFR § 60.113b(a) if you are complying with option 2(b) in permit condition 10.2, or according to the requirements of 40 CFR § 63.1063(c)(1) if you are complying with option 2(d) in permit condition 10.2;
2. If a gasoline storage tank is equipped with an external floating roof, the owner or operator shall conduct inspections of the floating roof system according to the requirements of 40 CFR § 60.113b(b) if you are complying with option 2(c) in permit condition 10.2, or according to the requirements of 40 CFR § 63.1063(c)(2) if you are complying with option 2(d) in permit condition 10.2; or
3. If a gasoline storage tank is equipped with a closed vent system and control device, the owner or operator shall conduct a performance test and determine a monitored operating parameter value in accordance with the requirements in 40 CFR § 11092(a) through (d), except that the applicable level of control specified shall be a 95-percent reduction in inlet total organic compounds (TOC) levels rather than 80 mg/l of gasoline loaded.

9.4 Requirements for gasoline loading rack. In accordance with 40 CFR § 63.11088(a), the owner or operator shall:

- (a) Equip loading rack(s) with a vapor collection system designed to collect the TOC vapors displaced from cargo tanks during product loading; and
- (b) Reduce emissions of TOC to less than or equal to 80 mg/l of gasoline loaded into gasoline cargo tanks at the loading rack; and
- (c) Design and operate the vapor collection system to prevent any TOC vapors collected at one loading rack from passing to another loading rack; and
- (d) Limit the loading of gasoline into gasoline cargo tanks that are vapor tight using the procedures specified in §60.502(e) through (j) of this chapter. For the purposes of this section, the term “tank truck” as used in §60.502(e) through (j) of this chapter means “cargo tank” as defined in §63.11100.

9.5 Requirements for equipment leaks. In accordance with 40 CFR § 63.11089(a), the owner or operator shall develop a leak detection and repair program that meets the following requirements:

1. Perform a monthly leak inspection of all equipment in gasoline service. The inspection detection methods may include sight, sound, and smell;
2. A log book shall be used and shall be signed by the owner or operator at the completion of each inspection. A section of the log book shall contain a list, summary description, or diagram(s) showing the location of all equipment in gasoline service;
3. Detection of a liquid or vapor leak shall be recorded in the log book. If a leak is detected, an initial attempt at repair shall be made as soon as practicable, but no later than 5 calendar days after the leak is detected. Repair or replacement of leaking equipment shall be completed within 15 calendar days after detection of each leak; and
4. Repairs of leaking equipment may be delayed if the repair is not feasible within 15 days.

9.6 Notification, records and reports. In accordance with 40 CFR § 63.11093, 40 CFR § 63.11094, and 40 CFR § 63.11095, the owner or operator shall develop, maintain, and submit the applicable notification, records, and reports.